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ABSTRACT

This study compared Chinese graduate students in the People's Republic of China (PRC) to Chinese graduate students in the United States (U.S.) in their analogical reasoning skills. Analogical reasoning was used because it requires multidimensional cognitive abilities. Subjects were 40 male and female Chinese graduate students who had graduated from colleges in PRC. Twenty subjects were attending graduate school at the Medical University of South Carolina in the U.S. while 20 were attending graduate school in the PRC. Both schools were medical universities. All 40 subjects took the written "Miller Analogies Test" in Chinese. Each problem was selected for cultural fairness. After a few practice problems, the subjects completed the test of 40 items in an untimed session. Results of the study showed that the students in the PRC performed significantly better than the students in the U.S. on analogical reasoning skills. These differences may be related to the sociocultural challenges that face the students in the U.S. and which may increase anxiety and decrease confidence. Another possible source of difference may be contact with an individualist society and the experience of conflict between collectivist culture and the U.S. individualist culture. (Contains 10 references.) (JB)

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A Cross-Cultural Comparison of Analogical Reasoning Between Chinese Graduate Students Studying in Either the People's Republic of China (PRC) or the United States of America (USA)

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A Cross-Cultural Comparison of Analogical Reasoning Between Chinese Graduate Students Studying in Either the People's Republic of China (PRC) or the United States of America (USA)

During the past three decades, there has been a fundamental change in international education, especially in the transitional movement of students at the college and university level (Jenkins, 1983). Particular in this transitional movement is the influx of foreign students into the United States (Butts, 1963; Kaplan, 1980). Butts (1963) emphasizes that the flow of foreign students coming to American colleges and universities has dramatically increased at a rate of ten percent annually since 1930 and will continue to increase. Kaplan (1980) suggests this increase is due to the unique educational opportunities offered in the USA, as well as the political freedom. Jenkins (1983) proposes that several variables such as intellectual curiosity, academic inquiry, restlessness, and a desire for professional advancement has motivated the foreign student to initiate study abroad. This has been of particular interest to American educators who have consistently worked to instill such positive academic qualities into the American educational system. Because of the accessibility of foreign students who study in the USA, cross-cultural comparisons are sometimes made between these students and American students. The problem that arises, however, is the issue of the comparability of foreign students who matriculate to the USA for educational or other purposes and the students who remain at home. If, as Jenkins (1983) suggests,

these students who study abroad are unique and more intellectually curious than the ones who stay at home, cross-cultural comparisons between American and foreign students studying in the USA may be flawed. What is necessary to answer this question is a comparison of foreign students who have come to the USA with a similar demographic group which has remained at home.

In the current investigation, we compared Chinese graduate students in the People's Republic of China (PRC) to Chinese graduate students in the United States of America (USA) in analogical reasoning skills. Previous studies comparing the performance of Chinese graduate students on analogical reasoning tasks with American students (Bellack and Wang, 1989) and Indian students (Bellack and Raju, 1990) report a significantly better performance by the Chinese students. The significant differences found in accuracy for solving analogies in these prior studies suggests that Chinese superiority may be related to the outstanding educational system in the PRC. Analogies were used because solutions require multidimensional cognitive ability (Sternberg, 1977). In the current study, we have hypothesized three main possibilities concerning the comparison of both groups of graduate students. The first hypotheis is that the Chinese graduate students in the USA will perform more accurately than the Chinese graduate students in the PRC on analogical reasoning tasks, thus supporting Jenkins (1983) assertion of intellectual superiority for the Chinese graduate students in the USA. Our second hypothesis states that there will be no difference between

the two groups of graduate students when performing the analogy test. This may be due to the assumption that the Chinese educationl system is very strong no matter where a student from China studies. Hypothesis three states that Chinese graduate students in the PRC will perform more accurately on the analogy test than the students in the USA. Support for this hypothesis comes from the idea that students who study abroad are not necessarily intellectually superior. Rather, these students deviate from the norm on a number of non-academic dimensions.

Method

Subjects

There were 40 male and female subjects obtained for the study. All the subjects were Chinese (PRC) graduate students who graduated from colleges in the PRC. Twenty subjects were attending graduate school in the United States while 20 were attending graduate school in the PRC. Both schools were medical universities. The school in the PRC was Anhui Medical University in the province of Anhui. The school in the USA was the Medical University of South Carolina. Chinese was the primary language of all the subjects.

Apparatus

A written test consisting of 40 analogies selected from Barron's Miller Analogies Test (MAT) practice skills booklet (Sternberg, 1989) was given to both the Chinese graduate students in the PRC and the Chinese graduate students in the USA. The test was a Chinese translation of the MAT, using Chinese

characters. The analogies were selected from 4 categories: 1) General Information; 2) Humanities; 3) Math; and 4) Natural Sciences (see test booklet for a description of the categories), with 10 analogies in each category, appearing in random order. Each analogy was selected for cultural fairness. That is, topics were not biased toward western or eastern literature, history, or political science.

Procedure

All 40 subjects were given the analogy test in small groups (3 to 5) in classrooms at their respective universities. After two practice analogies, they were told to answer the 40 analogies to the best of their abilities. The test was not timed.

Results

Figure 1 shows the mean number of accurately answered analogies for the Chinese graduate students in the USA and the PRC. As illustrated, the Chinese graduate students in the PRC answered more analogies accurately (M = 32.8, SD = 1.496) than the Chinese graduate students in the USA (M = 28.0, SD = 4.89). An independent t-test was performed and showed significant differences between the analogies answered accurately for the two groups, t (38) = -4.234, p <.01.

Insert Figure 1 about here

Discussion

The purpose of the present study was to compare analogical reasoning skills between Chinese graduate students attending school in the PRC and Chinese graduate students attending school in the USA. The results of this study showed that the Chinese graduate students in the PRC performed significantly better than the Chinese graduate students in the USA on analogical reasoning tasks, thus contradicting our first and second hypotheses. The significant difference between the two groups indicates support for hypothesis three. These differences may be related to a number of sociocultural factors and not purely intellectual or cognitive differences.

Students who study abroad are faced with a number of sociocultural challenges, such as communication, adaptation, and "general survival" in a foreign couyntry. These challenges clearly interfere with a student's intellectual abilities during the first year of living abroad (Kim & Gudykunst, 1988). These early interactions with a "host" culture often result in uncertainty and anxiety (Gudykunst & Hammer, 1988). Thus, performance on analogy tests would be of low priority for the foreign student, who may be less motivated to perform well than his resident counterpart.

Another possibility for differences lies in the dimesion of individualism and collectivism. According to Triandis (1989), in individualist cultures, most people's social behavior is largely determined by personal goals that overlap only slightly with the collective goals (i.e., family, workgroup, state). When

a conflict arises between personal and group goals, it is considered acceptable for the individual to place personal goals ahead of collective goals. By contrast, in the collectivist culture, social behavior is determined largely by goals shared with some collective, and if there is conflict between personal and group goals, it is considered socially desirable to place collective goals ahead of personal goals. When Chinese students travel to the USA and come in contact with the individualist culture, they are affected in a unique way. One such effect may be a reduction in motivation to do well on a test which has no personal benefit. In the PRC, the Chinese students are continuously obedient and compliant. They may, therefore, take testing more seriously. In the present study, the students in the PRC were tested by someone in their university. Thus, this testing situation occurred in the context of academic obedience. This context could account for the better performance by the students in the PRC.

Another piece of evidence supporting collectivist/individualist differences lies in the variance scores of the two groups. Not only did the Chinese in the PRC do better, but their variance score was 1.49. The variance score of the USA group was 4.89. These scores suggest that the students in the PRC may be using information from the same type of knowledge base. This is also evident in the fact that they all missed similar questions. This was not true of the students in the USA. More research investigating the causes of such low variance is suggested.

In summary, the present study examined the analogy solving ability of Chinese students studying in either the PRC or the USA. The results suggest that there are clear differences in the qualities of these two demographically similar populations. The causes for these differences appear to be sociocultural in nature. More research examining these types of populations is necessary to understand the effects of cultural adaptation as well as the variables related to a student's desire to study abroad.

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Fig 1 Mean Accuracy Scores
for Chinese Students in USA and PRC